

Video Game Play and Design: Procedural Directions



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Procedural Simulation: Time To Get Real Tom Hershey



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Procedural Simulation

- Realistic Behaviors - "A.I."
- Any "On-The-Fly" Generated Action/Asset
 - NPC's, Terrain, Textures, Weather, etc.
- Advantages:
 - Sophistication, Volume, Speed, Reusability
- Drawbacks:
 - Emerging Science, Complex, Expensive



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Overview

- Evolution of Game Consoles
 - More cycles, more storage, dynamic content
 - Procedural simulation as emerging R&D
- Impact on 3 Fronts:
 - Users
 - Developers
 - Unlikely Partners



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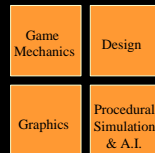
The Old Days: Cram It In...

- Graphics, Mechanics, Design
 - Balancing cycles, storage
- Procedural Simulation
 - Pushes boundaries of game technology
 - Often forced to utilize "leftover" resources



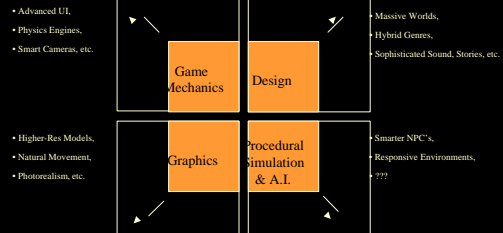
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Fitting It All In The Box



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A Bigger Box To Fill...



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Today: Still Cramming, But...

- Faster Hardware
- High Capacity Delivery
 - CD v. DVD
- Local Storage
- Additional Content Via Internet

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All Lines Point To Procedural Simulation

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The X Axis: The User

- Deeper, Richer Content
 - Experience to showcase hardware capability
- Enhanced Gameplay
 - Smarter NPC's,
 - Wider variety of interactions
 - Variations from session to session
- Immersive Style Over Hyperrealism

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The Y Axis: The Developer

- "That's A Damned Big Box..."
 - Producing enough content
 - Internet connectivity = even more content
 - More money + more time = greater risk
 - Mechanics, Design, Graphics & A.I. all demand higher levels of expertise
 - How can I supplement my talent pool & spread my risk?

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The Z Axis: Unlikely Partners

- The Motion Picture/TV Effects Industry
 - Historically overlapping talent pool
 - Gap in CG and Procedural Simulation narrowing
- Academia
- Console Manufacturers
- Other Centers of CG Research
 - Architecture, Medicine, Engineering, Military

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Procedural Simulation Satisfying:

- The User
 - Provides deep and challenging content
- The Developer
 - Provides economic way to produce larger volume of rich, innovative content
- The Now-More-Likely Partners
 - Additional revenue source
 - Real World application of their code

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Making Procedural Simulation Work

- Development of Modular Code
 - Approach like a Graphics Engine
 - Amortize over multiple titles
- Enlist 3rd Party Resources - Joint Ventures
- Strive For Balanced Gameplay
- Establish Defining Style Instead of Realism

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